Section 912c Report

Requirements and Acquisition

June 1999

Prepared by the Section 912c Requirements and Acquisition Study Working Group per the Steering Group Memorandum signed by the Under Secretary of Defense (Acquisition & Technology) and the Vice Chairman, Joint Chiefs of Staff.

Contents

Executive Summary

Consistent with the requirements of Section 912 of the National Defense Authorization Act for Fiscal Year 1998, the Under Secretary of Defense (Acquisition & Technology) and the Vice Chairman of the Joint Chiefs of Staff (VCJCS), jointly established an Oversight Group and a Steering Group to study improvements for integration of the requirements generation and acquisition management systems. The Objectives for the Study were to 1) review the adequacy of the Requirements Generation System (RGS) to ensure an efficient interface with the acquisition needs of the Department, 2) examine areas where the RGS could be changed to improve its support of current and future warfighters' needs, and 3) provide improvement recommendations.

The Charter for the Requirements and Acquisition Study Oversight and Steering Group also identified a Working Group to perform the study. Working Group membership was identified and functioned as an Integrated Product Team (IPT) during the study from October 2, 1998, to February 26,1999.

The Working Group reviewed the current RGS and acquisition system processes with a view to identifying changes that would improve the interface, and received over 20 briefings from the Department of Defense (DoD), Joint Staff and Services representatives to identify potential areas for improvement. Topics included: RGS; Advanced Concept Technology Demonstrations (ACTDs); Cycle Time Reduction; Service perspectives of the acquisition process; Cost As an Independent Variable (CAIV); Operational Test and Evaluation (OT&E); interoperability; evolutionary acquisition; several Program Manager's perspectives, and other topics. Requirements and acquisition process problem areas were identified.

The Working Group identified findings, recommendations, and action plans, which were presented to the Steering Group for consideration. Nine findings in the four major areas of: acquisition cycle time reduction; interoperability; requirements tracking and coordination, and education and training, were identified to present to the USD(A&T) and the VCJCS. The USD (A&T) and the VCJCS agreed with the basic findings, recommendations and action plans, and with the addition of cost in the Operational Requirements Documents (ORDs).

The Working Group Findings have been separated into two groupings: Primary Focus Areas and Support Focus Areas. A summary of the findings and recommendations in these focus areas are shown below:

I. Primary Focus Areas:

1. Cycle Time Reduction (CTR)

   A. *Finding:* **There is no clear policy statement on the use of evolutionary acquisition as a preferred approach and insufficient attention is paid to schedule.**

   Recommendations: 1. Treat time as money, and evaluate performance over time, starting immediately (Assessment of Alternatives, Cost As an Independent Variable, etc). Implement through USD(A&T) memorandum that also calls for more attention to schedule breaches. 2. Early focus to defining evolutionary acquisition policy as the preferred approach is needed with updated guidance in DoD 5000.2. (OPR[1]: SA)

   B. *Finding:* **Policy and guidance are needed for time-phased requirements to support an evolutionary acquisition process.**

   Recommendations: 1. VCJCS should issue guidance immediately to express requirements in a time-phased approach, wherever possible. Guidance should also specify that cost/price should be specified as an important affordability parameter of each phase. 2. Potential acquisition programs should use the current flexibility to evolve to a detailed definition of thresholds/objectives for Key Performance Parameters (KPPs) in Operational Requirement Documents (ORDs) prior to starting acquisition. 3. Define policy guidance to describe time-phased requirements and revise Chairman, Joint Chiefs of Staff Instruction CJCSI 3170.01 and DoD 5000.2-R. (OPR: JS/A&T)

   C. *Finding:* **There should be a broader use of demonstrations to assess military utility.**

   Recommendations: Use demonstrations as a preferred method of concept and technical risk reduction and military utility assessment. Interpret ACTD approval as a mission need determination. Include CAIV analyses, acquisition strategy, and supportability needs to support potential CONOPS and ORD development, and potential transition to acquisition. (Note: Responsive funding for programs that transition to acquisition was identified as a budget issue but outside of the scope of this group.) (OPR: JS/A&T)

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[1] OPR - Office(s) of Primary Responsibility
SA - OUSD(A&T), Director of Systems Acquisition
JS - Joint Staff
A&T - Office of the Under Secretary for Acquisition and Technology
S&T - OUSD(A&T), Director of Science and Technology
AR - OUSD(A&T), Director of Acquisition Reform

D. *Finding:* **Market analysis is needed to identify mature and emerging technology opportunities matched to a threat.**

Recommendations: The USD(A&T) should issue immediate guidance to the research community to: (1) establish an annual process to ensure that emerging science and technology (S&T) information (both domestic and foreign) is provided to the requirements community and program managers, and (2) apply market research and surveillance techniques to identify alternative concepts. (OPR: S&T)

2. Interoperability

Finding: **Interoperability is not adequately addressed.**
There is not an adequate definition of interoperability between multi-Service or international and joint mission area systems. ORDs tend to be system specific and do not address interoperability within the same joint mission area. For allied cooperative projects, requirements need to be addressed early during project formulation.

Recommendations: (1) Make interoperability a Key Performance Parameter (KPP) for Capstone Requirements Documents (CRDs) and ORDs, where applicable (i.e., for systems that will interface and operate with others in a joint environment). Ensure that interoperability and requirements priorities are addressed in international programs. (2) Issue guidance on requirements harmonization for cooperative programs. (OPR: JS/A&T)

3. Cost in the Operational Requirements Document

Finding: **Cost is usually not addressed in ORDs.**

Recommendation: Cost will be addressed in the ORD. Inclusion of cost allows the DoD component sponsor to set an affordability goal for the proposed program. The cost figure shall be stated in terms of a threshold and objective (not necessarily a KPP) in order to provide flexibility to allow for program evolution and CAIV trade studies. The DoD component sponsor may make cost a KPP if it desires and identify the cost it wishes to evaluate. (OPR: JS/A&T)

II. <u>Support Focus Areas</u>:

    4. Requirements Tracking and Coordination

> ***Findings:* Services and agencies have different means of tracking requirements documents: automated, manual, or a combination of both. There is no cross-Service visibility into the requirements generation system.**
>
> *Recommendations:* An automated data sharing system would facilitate, and accelerate, processing new requirements. Implement a cross-DoD requirements tracking and coordination system in two Phases: Phase I—the Joint Staff, J8, should establish a **requirements document tracker** for all Acquisition Category (ACAT) programs Mission Needs Statements (MNS) /ORD/CRDs. Phase II—develop an integrated **requirements coordination** system. (OPR: JS/Services)

    5. Education and Training

> *Findings:*
> - **No common requirements development training is provided across the Services.**
>
> - **Services provide training which ranges from classroom instruction to on-site education.**
>
> - **No cross-training is done between requirements and acquisition communities.**
>
> - **A common "core" module addressing requirements and acquisition interfaces would enhance communication between the two communities. CAIV should be part of the core module.**
>
> *Recommendations*: Develop a "core" training module including both requirements and acquisition subject matter that can be delivered via cost effective techniques such as distance learning methods. (OPR: JS/AR)

The material that follows contains background information, the approach and methodology used, and the findings, recommendations, and action plans. Appendices contain some additional Working Group materials.

1.   Background

Section 912 of the National Defense Authorization Act for Fiscal Year 1998 required the Secretary of Defense to study aspects of the acquisition, requirements, and budgeting systems and make recommendations to Congress concerning ways to streamline acquisition organizations, workforce, and infrastructure. In response to Section 912, the Secretary reported to Congress on 1 April 1998 his vision for the future acquisition workforce, as well as his direction to the Department to conduct a number of studies. These studies were to determine the appropriate actions that would need to be taken to move the Department towards that vision. This report did not specifically address a study of actions to improve the integration of the requirements generation and acquisition management systems. Based on a recommendation from the Under Secretary of Defense for Acquisition and Technology (USD(A&T)), the Defense Management Council—led by the Deputy Secretary of Defense—agreed during its consideration of the Congressional report that a review of the requirements generation system (RGS) should be undertaken jointly by the USD(A&T) and the Vice Chairman of the Joint Chiefs of Staff (VCJCS).

The Under Secretary and Vice Chairman commissioned an Oversight Group and a Steering Group to study improvements for the integration of the requirements and acquisition management systems. The study was established by Memorandum to the Secretaries of the Military Departments, signed by Gen Joseph W. Ralston, USAF, and the Hon. Jacques S. Gansler. This report contains the results of that study.

The Charter for the Requirements and Acquisition Study Oversight and Steering Group requires a Working Group to perform the study. The objectives for the study were: 1) to review the adequacy of the RGS to ensure an efficient interface with the acquisition needs of the Department; 2) to examine areas where the RGS could be changed to improve its support of current and future warfighters needs; and 3) to provide improvement recommendations. The Working Group charter and the Group's objectives were refined by the Oversight and Steering Groups based upon data presented during progress reviews.

The Oversight and Steering Group Charter also provided a non-exclusive list of areas for the Working Group to consider. These areas were:

a. Increased program stability by actions such as:
   - examining how new starts (including programs initiated following Advanced Concept Technology Demonstrations (ACTDs)) enter the requirements generation and acquisition processes;
   - considering how to make investment decisions between new systems and modifications/upgrades to current systems;
   - considering how affordability (especially total ownership cost) is considered in the requirements process, to include the use of the cost as an independent variable (CAIV) process, the role of acquisition program baselines in establishing cost

limits, and the use of the Defense Program Projection (DPP) as a tool for anticipating future programs and as an effort to mitigate future "bow waves."

b. Increased requirements flexibility for program managers by actions such as:
    - establishing evolving requirements consistent with a spiral development approach;
    - examining the effects of streamlined acquisition processes (e.g., ACTDs, warfighting experiments, Advanced Technology Demonstrators (ATDs), etc.), aimed at shortening cycle times, on the requirements generation system and documentation requirements;
    - considering and fielding emergency requirements.

c. Increased information flow between the requirements and the acquisition communities, including increased use of automation in requirements generation.

d. Enhancing the process for establishing requirements, especially joint requirements for all programs, including those less than major defense acquisition programs, by:
    - considering an integrated process for establishing requirements; and
    - increasing the use of market research in establishing requirements.

e. Improving the education and training of requirements developers and acquisition personnel by, for example, considering rotational assignments between users, schools, and program offices.

f. Identifying expected outcomes and metrics for both warfighters and the acquisition community to coincide with study recommendation implementation.

The Scope for the Requirements and Acquisition Working Group may be stated as follows:

> ***Study the current Requirements Generation System interfaces with the acquisition system and provide recommendations for improving the efficiency of and interfaces/integration between and within (as appropriate) current systems to result in an improved RGS to support current and future warfighter needs.***

2.   Approach

A Steering group and a Working Group were established. The Steering Group consisted of the Director, OUSD(A&T) Strategic and Tactical Systems (S&TS) and the Deputy Director, Resources and Requirements Joint Staff (J-8), as co-chairs of organizations identified in the charter for the study. Working Group co-chairs and members were established and the Group held its first meeting on October 2. The Joint Requirements Oversight Process/Training Study (J-8) and the ACTD processes were briefed at those first two Working Group meetings.

The Working Group process was then established as a series of topical presentations and discussions regarding the entire RGS. The discussion centered on how to improve the process. The Working Group identified, reviewed, and evaluated a number of topics and "white papers" from October 2 through December 10. External participants were requested to discuss their views on needed process improvement. Topics and "white papers" are shown below:

No.	Discussion Topics
1)	Joint Requirements Oversight Process/Training Study
2)	ACTDs – process and status
3)	Current DoD 5000 description of Interfaces
4)	Cycle Time Reduction Initiative Status
5)	Army Requirements Generation System
6)	Navy Requirements Generation System
7)	Marine Requirements Generation System
8)	Air Force Requirements Generation System
9)	Test Unique Requirements
10)	C3I Interoperability
11)	Cost as an Independent Variable (CAIV)
12)	Theater Missile Defense (TMD) Capstone Requirements (BMDO)
13)	Integrated Requirements Support System (IRSS)
14)	Joint Strike Fighter Process
15)	Space Based InfraRed System (SBIRS) Program Manager Experiences
16)	Army Program Manager Experiences
17)	Navy Program Manager Experiences
18)	Analysis of Alternatives
19)	Evolutionary Acquisition
20)	Modernization Planning Process (MPP) Air Combat Command
21)	Joint Staff – Requirements and Acquisition
22)	Joint Requirements and Oversight Council (JROC)

No.	White Papers
23)	Transition of ACTDs to the Formal Acquisition Process
24)	An Investment-Based Approach for Managing Software-Intensive Systems
25)	Examining New Starts Entering the Requirements/Acquisition Process (two papers)
26)	Integrated Requirements System

In-process reviews (IPRs) were held for the Steering Group on 28 October, 4 December, and 20 January. In addition, the Oversight Group co-chairs were briefed on 15 December and 5 February. The results and recommendations from these progress reviews were briefed at the next Working Group meeting.

An initial draft of the Requirements and Acquisition Working Group report was prepared and used as input for a two-day Working Group Offsite on January 7-8. The Offsite was structured into five separate breakout sessions on the following topics: 1) Up-front investments, front-end risk assessments, trade studies, simulations, CAIV, and upgrades vs. new systems; 2) Cycle time reduction and time phased requirements; 3) Joint requirements: Defense Planning Projections (DPP), Joint Service, Allied/international cooperation; 4) Training/cross training, automation and information sharing, and 5) Improvement of interfaces between requirements and acquisition processes. These breakout groups prepared draft text for the Working Group report in their specific areas.

The findings from the Offsite were presented to the Steering Group for review and comment. The resulting set of findings, recommendations, and action plans are presented in the next section.

3. Findings, Recommendations and Action Plans

The findings, recommendations and action plans are derived from the results of the Working Group Offsite. Findings are grouped into either an Improvement Focus Area or a Support Focus Area:

I.   Primary Focus Areas:

1. Cycle time reduction (CTR)
2. Interoperability
3. Cost in the ORD

II.   Support Focus Areas:

4. Requirements Tracking and Coordination
5. Education and Training

I.   Primary Focus Areas

1. Cycle Time Reduction

Acquisition cycle time has received intermittent attention from DoD since the Packard Commission introduced "A Formula for Action" in 1986 with little effect. In 1994, Secretary of Defense Perry challenged the defense services and agencies to reduce cycle time by 50 percent by the year 2000. This resulted in the following "goal" initiatives:

- Prior to the Federal Acquisition Streamlining Act (FASA) in 1994 — DoD was pursuing a goal to deliver emerging technology to the troops in 50 percent less time.

- DoDs National Performance Review (NPR) goal — Reduce cycle time for Major Defense Acquisition Programs (MDAP) by 25 percent by the year 2000.

- Defense Systems Affordability Council (DSAC) Direction in 1997 — Aim for 50 percent reduction in acquisition cycle time. Institutionalize changes in 5000.2-R policy.

Acquisition cycle time is defined as the time from Acquisition Program Initiation to Initial Operational Capability (IOC). The point of Acquisition Program Initiation may vary depending on the type of program and the initial front-end program development (e.g., an ACTD front-end for a program).

Four findings and recommendations were identified to improve the requirements and acquisition interface to achieve cycle time reduction from the current values. The four primary focus areas are: implementing evolutionary acquisition as a preferred method; use of time phased requirements to support evolutionary acquisition; broader use of demonstrations and the need to identify mature and emerging technology opportunities matched to a threat.

Finding 1.A.

There is no clear policy statement on the use of evolutionary acquisition as a preferred approach and insufficient attention is paid to schedule.

Recommendations:

Treat time as money, and evaluate performance over time, starting immediately (Assessment of Alternatives, Cost As an Independent Variable, etc). Implement through USD(A&T) memorandum that also calls for more attention to schedule breaches. 2. Early focus to defining evolutionary acquisition policy as the preferred approach is needed with updated guidance in DoD 5000.2.

Action Plan:

Action	Due	OPR*
Define an evolutionary acquisition policy statement for DoD that is schedule focused and allows for spiral development. The goal is a maximum acquisition cycle time length of no more than 6 years.	2 mos.	SA
Issue policy in DoD 5000.2	4 mos.	SA

*Note: Office(s) of Primary Responsibility. Other Offices will be included as appropriate.

Discussion:

The environment in which defense acquisition occurs has changed significantly since the end of the Cold War. This changed environment is characterized by, among other things, the absence of a consistent, long-term, singular military threat, and by the expansion of the civil marketplace as a driving force behind technology and threat development. Increasingly, technology development is becoming a function of global civilian market forces.

In the new environment, cycle time reduction is more important than ever. And one of the principal difficulties with traditional acquisition activities has been that the time required to complete the entire process has lagged behind changes in requirements and in the capabilities that are provided by technology advances. Long cycle times can cause various problems, including high costs, technology obsolescence, evolution of the threat beyond the capabilities being procured, and continuing evolution of user requirements (requirements creep).

Additionally, when the cost-effectiveness of various approaches is considered, it should include the total effect on our operating and support accounts due to the delay of introduction of a follow-on replacement system. The cost of delay must consider the additional costs to be incurred resulting from operations, maintenance, training, and manpower costs of existing systems that would be retired from service upon the introduction of the new capability.

The concept of evolutionary acquisition is described and included as discretionary information in the Defense Acquisition Deskbook. However, there is no clear DoD policy statement on the use of this as a preferred approach to defense acquisition.

To address this problem, and as a companion to our recommendation to adopt time-phased requirements, the Section 912 study group recommends the development of a clear policy statement on EA to be included in the DoD 5000. The policy statement should say that evolutionary acquisition:

- Is an acquisition strategy that develops and delivers a series of incremental capabilities to users over an extended period of time.

- Encourages early fielding of a well-defined core capability in response to a validated requirement.

- Is more appropriate in situations characterized by a relatively high degree of uncertainty in requirements, technology, and other salient factors. Evolutionary acquisition is a preferred approach, but it is not necessarily appropriate for all development efforts.

- Requires continuous communications and interaction between the user, technology, and development communities. Evolutionary acquisition is distinguished from pre-planned product improvements (P3I) in that the acquisition community does not explicitly plan for a committed technology development effort to achieve desired future increments of operational capability. Rather, the evolutionary approach "evolves" in response to emerging, time-phased requirements and exploits available technologies to help meet these emerging requirements.

Finding 1.B.

Policy and guidance are needed for time-phased requirements to support an evolutionary acquisition process.

Recommendations:

1. Vice Chairman, Joint Chiefs of Staff should issue guidance immediately to express requirements in a time-phased approach wherever possible. Guidance should also specify that cost/price should be specified as an important affordability parameter of each phase. 2. Potential acquisition programs should use the current flexibility to evolve to a detailed definition of thresholds/objectives for Key Performance Parameters (KPPs) in Operational Requirement Documents (ORDs) prior to starting acquisition. 3. Define policy guidance to describe time-phased requirements and revise Chairman, Joint Chiefs of Staff Instruction CJCSI 3170.01 and DoD 5000.2-R.

Action Plan:

Action	Due	OPR
Prepare and staff revisions to CJCSI 3170.01 and DoD 5000.2-R. This should be consistent with a maximum acquisition cycle time of 6 years.	2 mos.	JS/A&T
Issue revised instructions: CJCSI 3170.01 and DoD 5000.2-R	4 mos.	JS/A&T

Discussion:

As DoD moves to reduce the cycle time of traditional acquisition activities, through evolutionary acquisition (EA), there needs to be an effective mechanism for formally specifying operational requirements. Time-phased requirements will support evolutionary acquisition by use of time-phased increments that match available technology that allow delivery of systems to the field in increasing increments of capability.

Time-phased requirements—not currently in the Deskbook—will define the operational requirements of the baseline system and the first (core) increment. The succeeding steps sequentially define the follow-on increments of the system.

Also, current policy requires that KPPs associated with ACAT I and identified special interest program ORDs be validated by the JROC at each milestone. Setting performance parameter thresholds at MS I without adequate knowledge of the total ownership cost impacts can lead to a very costly and unstable design. Requirement developers should use the current process to establish threshold and objective KPPs for MS I, then refine and definitize KPP thresholds and objectives at MS II.

Time phased requirements:

- Support the concept of evolutionary acquisition.

- Allow ORDs with obvious evolutionary growth potential to describe how incremental increases in capability can benefit the warfighter.

- Will include the proposed approach to be used for subsequent incremental developments and coordination for evolutionary acquisition programs in the initial ORD.

- Involve incremental changes to the initial ORD, subsequent to the original validation and approval process, and should be staffed and approved as revisions.

The concept of evolutionary acquisition (time-phased acquisition) is described in the DoD Acquisition Deskbook. Thus, to support its application, the requirements community needs to understand and provide guidance and policy on how time-phased requirements supports evolutionary acquisition.

Finding 1.C.

There should be a broader use of demonstrations to assess military utility.

Recommendation:

Use demonstrations as a preferred method of concept and technical risk reduction and military utility assessment. Interpret ACTD approval as a mission needs determination. Include CAIV analyses, acquisition strategy, and supportability needs to support potential CONOPS and ORD development, and potential transition to acquisition. (Note: Responsive funding for programs that transition to acquisition was identified as a budget issue but outside of the scope of this group.)

Action Plan:

Action	Due	OPR
Prepare and staff policy to use demonstrations for concept and technical risk assessments	2 mos.	ASC/DOTE/ Services
Define demonstration approval process to ensure that they automatically constitute a valid mission need	2 mos.	JS
Issue revised instructions: CJCSI 3170.01 and DoD 5000.2-R	4 mos.	JS/A&T
Update ACTD transition guidance	4 mos.	ASC

Discussion:

The interface between the RGS and acquisition does not fully capitalize on the demonstration of military utility process to ensure that the acquisition system satisfies the "real warfighter needs". The benefits of demonstrated military utility are: early fielding of a priority military capability, a better match of technology to required operational and warfighter needs, and reduced cost.

Because of the current ACTD identification and approval process, permission to start an ACTD or a military utility demonstration should equate to a mission need statement (MNS). This will improve the transition of the ACTD or demonstration products into the acquisition process. Military utility demonstrations should be conducted by the Commanders in Chief (CINCs) to ensure user/warfighter involvement early in the requirements generation process. This demonstration of military utility should confirm the operational CONOPS and support development of a requirements document.

DoD 5000 should require use of military utility demonstrations, such as an ACTD or Joint Warfighter Experimentation, as a preferred method for concurrent requirements generation and concept risk reduction to provide an initial operational capability when necessary. Our current 5000 policy may be sending the wrong message on ACTDs by characterizing them as "non-traditional" and only weakly "encouraging the PMs to search for innovative practices to reduce cycle time. The development or demonstration effort should include efforts to provide CAIV analysis and suitability analysis to enable rapid transition to engineering and manufacturing development or production. Transition of

the demonstration products should include a CAIV analysis that will support the ORD and CONOPS development. The existing ACTD transition guidance will require revision to address this analysis strategy.

Demonstration of military utility during the requirements definition phase is needed to provide a "real" mission need assessment.

Finding 1.D.

Market analysis is needed to identify mature and emerging technology opportunities matched to a threat.

Recommendation:

The USD(A&T) should issue immediate guidance to the research community to: (1) establish an annual process to ensure that emerging science and technology (S&T) information (both domestic and foreign) is provided to the requirements community and program managers, and (2) apply market research and surveillance techniques to identify alternative concepts.

Action Plan:

Action	Due	OPR
Enhance the joint warfighting S&T process to insure that mature technologies are articulated to the requirements and program management communities	4 mos.	DUSD(S&T)
Initiate 1st annual S&T conference on maturing technology	12 mos.	DUSD(S&T)

Discussion:

There is a bias for developing new equipment and capability in lieu of exploiting an existing comparable capability. This approach should be challenged. The first consideration should be Intra-Service alternatives followed by inter-Service considerations. This requires the institutionalization of market research and surveillance (MR&S) as an approach that helps ensure that DoD is current on the vast capability of the US and global commercial industrial base. Considerations should be made to keep current on our allies' military products and services as well.

The applications of MR&S should extend beyond acquisition decisions to considerations in mission needs analysis and mission area analysis. Market research and surveillance offers significant opportunity for both cycle time reduction and development/production cost reductions. Market research can result in better informed requirements determinations, fully considering the application of transition-ready commercial technologies, supplies, and services.

2. Interoperability

Interoperability has not been adequately defined for between multi-Service or international and joint mission area systems. ORDs tend to be system specific and do not address interoperability within the same Joint mission area. For allied cooperative projects, requirements need to be addressed early during program formulation.

Finding 2.

Interoperability is not adequately addressed.

There is not adequate emphasis on interoperability between multi-Service or international and joint mission area systems. ORDs tend to be system specific and do not address interoperability within the same joint mission area. For allied cooperative projects, requirements need to be addressed early during program formulation.

Recommendations:

(1) Make interoperability a KPP for Capstone Requirements Documents (CRDs) and ORDs, where applicable (i.e., for systems that will interface and operate with others in a joint environment). Ensure that interoperability and requirements priorities are addressed in international programs. (2) Issue guidance on requirement harmonization for cooperative programs.

Action plan:

Action	Due	OPR
Make interoperability a KPP immediately for new programs and major new upgrades to existing equipment	Upon 912 completion	JS
Update CJCSI 3170.01 and DoD 5000.2-R	6 mos. after memo	JS/A&T
Establish task force to update and promulgate policy for international cooperation	4 mos.	IP

Discussion:

It is envisioned that future conflicts will continue to require the employment of joint and allied/coalition forces. In this type of warfighting environment, joint and combined interoperability serves as a force multiplier to maximize capabilities. Improving the processes by which joint interoperability capabilities are acquired will lead to more open architectures, which can, in turn, be used to improve combined interoperability capabilities.

The Quadrennial Defense Review (QDR) and Joint Vision 2010 emphasize the need to capitalize on future joint and combined warfighting capabilities. Concepts such as

Digitized Battlefields, Global Reach-Global Power, and Network-Centric Warfare suggest radically new ways of warfighting; each will be dependent on achieving the synergies that come from interoperable forces.

Interoperability is more than just connectivity among disparate systems. It is a force multiplier that allows systems to work together to accomplish a <u>joint mission area</u> capability. It is the "glue" that provides family of systems capabilities that are greater than the sum of the individual system capabilities. It is critical to maximizing warfighting capabilities in an era of severely constrained DoD resources.

Today's acquisition processes are being tailored for disciplined acquisition of these joint mission capabilities via policies such as open systems architectures that also allow cycle time reduction. Interoperability cuts across Service lines, force structure, acquisition processes and policies, legacy and future weapons systems, and technologies. Efficient and cost-effective acquisition of these capabilities calls for a joint mission acquisition approach. However, today's acquisition processes are predominantly Service- and systems-focused. In addition, interoperability is an ad hoc driver of system design and evaluation, and yet does not compete well with Service requirements for funding. Joint warfighter representation during systems interoperability cost-performance trades, and throughout the acquisition process, would ensure that these important considerations receive enough attention.

3. Cost in the Operational Requirements Document

Finding 3.

Cost is usually not addressed in ORDs.

Recommendation:

Cost will be addressed in the ORD. Inclusion of cost allows the DoD component sponsor to set an affordability goal for the proposed program. The cost figure shall be stated in terms of a threshold and objective (not necessarily a KPP) in order to allow for program evolution and CAIV trade studies. The DoD component sponsor may make cost a KPP if they desire and identify the cost it wishes to evaluate.

Action Plan:

Action	Due	OPR
Promulgate joint—VCJCS & USD(A&T)—policy memo immediately	Upon 912 completion	JS/A&T
Incorporate guidance addressing cost in the ORD in subsequent updates of CJCSI 3170.01 and DoD 5000.2-R	6 mos. after memo	JS/A&T

Discussion:

Requirements developers can assist the acquisition community by making a statement about cost in the ORD, and then update and evaluate it at each milestone. Addressing cost in the ORD will be the Service or agency affordability statement relative to the amount of funding it is committed to dedicate to given phases or the full program. The cost discussion may be similar to the "schedule" statement in the ORD. Where feasible, the cost figure should allow flexibility so it may be revised as the program is progressively defined and trade-off studies are completed. A Service or agency may also have the prerogative to make cost a threshold parameter if determination is made to do so.

The cost number can be developed using data from approaches under CAIV, such as the AoA. The Service or Agency has the responsibility to identify the cost it wishes to evaluate.

II.   Support Focus Areas

4. Requirements Tracking and Coordination

Findings 4.

Services and agencies have different means of tracking requirements documents: automated, manual, or a combination of both. There is no cross-Service visibility into the requirements generation system.

Recommendations:

An automated data sharing system would insure cross-Service compatibility to expedite/facilitate processing requirements. Implement a cross-DoD requirements tracking and coordination system in two Phases: Phase I - the Joint Staff, J8, should establish a **requirements document tracker** for all Acquisition Category (ACAT) programs Mission Needs Statements (MNS)/ORD/CRDs. Phase II - develop an integrated **requirements coordination** system.

Action Plan:

Action	Due	OPR
Implement automated tracking	Upon 912 completion	JS/Services
Develop requirements tracking database	Within 6 mos.	JS/Services
Develop integrated DoD system to share documents	24 mos.	JS/Services

Discussion:

Development of requirements can be a lengthy process. Each Service uses a different means of tracking draft and validated requirements documents. Some methods are automated and some are a combination of automated and manual. But all are standalone systems that do not provide visibility across Service lines.

DoD could benefit significantly from an interoperable, integrated requirements information system, which would integrate the outputs of each Service's independent database (that the Services would continue to manage). An unclassified workstation could have a "requirements" network browser to access each Service's database.

The cost of this capability should not be excessive, and the benefits could be considerable. Having visibility into cross-Service analyses, assessments, and requirements will allow more meaningful searches for existing and ongoing efforts leading up to Milestone 0 and I. This potential integrated requirements information system would allow the services and the CINCs to conduct cross-Service searches for similar ACAT I and other programs.

5. Education and Training

Findings 5.

- **No common requirements development training is provided across the Services.**

- **Services provide training, which ranges from classroom instruction to on-site education.**

- **No cross-training is done between requirements and acquisition communities.**

- **A common "core" module addressing requirements and acquisition interfaces would enhance communication between the two communities. CAIV should be part of the core module.**

Recommendation:

Develop a "core" training module including both requirements and acquisition subject matter that can be delivered via cost effective techniques such as distance learning methods.

Action Plan:

Action Plan	Due	OPR
Develop core training module plan and obtain funding in FY99	3 mos. after approval	JS/AR
Develop distance learning pilot module	6 mos.	JS/AR
Release full scale module	12 mos.	JS/AR

Discussion:

Each Service generally develops and provides its own training courses in requirements development and acquisition practices. In general there is little coordination between the Service training programs, and often little coordination between requirements and acquisition courses even within the same Service.

Based on a review of course materials for Service training courses, a 1998 Tiger Team concluded that more emphasis should be placed on CAIV and market analysis. The Tiger Team also observed that it would be useful to develop a "core" requirements course including both requirements and acquisition system subject matter that could be developed via distance learning. The course would not address Service-specific issues; it would ensure a common information base on a formally approved set of subjects, to achieve the following objectives:

- Improve accessibility and timeliness of training;

- Create an expanded training population to improve the interface between the requirements and acquisition communities;

- Reduce training costs.

Appendix A: Current Requirements Generation/Acquisition Systems

Overview

The current requirements generation/acquisition processes were reviewed within the context of looking for areas that needed to be changed to improve efficiency within the total system, i.e., between and within existing systems/processes. The briefings provided to the Working Group formed the basis for doing this. The current processes used by the Services and the A&T Acquisition process are described in this section.

The Chairman of the Joint Chiefs of Staff assess military requirements for defense acquisition programs and represents the CINCs with respect to their operational requirements. The Chairman of the Joint Chiefs of Staff, assisted by the Vice Chairman and other members of the Joint Chiefs of Staff, establishes and publishes policies and procedures governing the requirements generation system in CJCSI 3170.01. The Joint Requirements Oversight Council (JROC) facilitates the execution of these responsibilities. The Vice Chairman, assisted by the JROC, will oversee the operation of the requirements generation system in accordance with DoD 5000 and policies and procedures contained in CJCSI 3170.01 which provide the critical linkage between the requirements and acquisition communities.

The JROC oversees the requirements generation process and mission need determination. They perform mission need review, validation, and approval prior to start of the acquisition process. Additionally, the JROC ensures, in its review process, military requirements are linked to the national military strategy. Emphasis is placed on fulfilling the needs and eliminating deficiencies of the combatant commands while ensuring interoperability, reducing parallel and duplicate development efforts, and promoting economies of scale.

The JROC reviews potential ACAT I programs and MDAPs to support the defense Acquisition Board (DAB) process. The JROC may also address non-major defense acquisition programs to resolve contentious and high-level interest issues, such as designation of lead Service or agency. The JROC evaluates performance, cost, cost as an independent variable (CAIV) objectives, and schedule when considering acquisition programs. Potential ACAT I and JROC special interest MNSs, CRDs, and ORDs are forwarded to the JROC for staffing, coordination and review.

Each Service has their own unique process for requirements generation and mission need determination which are described in the following sections.

Army

The Army requirements generation system (RGC) begins with the identification of the future vision, which is developed under the auspices of the Commanding General, Training and Doctrine Command (TRADOC). All Army Concepts of Operations are

required to be developed from this vision statement. These two form the basis for identifying the Future Operational Capabilities (FOC) across all parts of the "Doctrine, Training, Leadership Development, Organization, Materiel, and Soldier," (DTLOMS) and all Army mission areas. From the FOC listing, coupled with potential technologies, these ideas and concepts form the basis for new needs, or improvements to capabilities in current military systems. The listing can also help identify necessary improvements needed in other areas of the DTLOMS.

TRADOC initiates an Integrated Concept Team (ICT) to conduct the necessary evaluation to develop a Mission Needs Statement (MNS), or Operational Requirements Document (ORD), and to be responsible for conducting the Analysis of Alternatives, or related analyses. The ICT includes members from all functional areas involved, including the materiel developer. The ICT guides the assessment process through the development and approval of the MNS and/or ORD, and until the program manager is assigned and he establishes the Integrated Product Team. This usually happens prior to Program Initiation. Most of the ICT members transition to the new Team.

TRADOC has approval authority for all Army warfighting requirements. All MNS and ORDs are approved by the Commanding General, TRADOC. All ACAT I/special interest requirement documentation is forwarded to Headquarters of the Department of the Army for staffing through the Joint Requirements Operations Council, as required by CJCSI 3170.01. All other requirements documentation is managed by Headquarters, TRADOC. The specific details for RGS in the Army is contained in TRADOC PAM 71-9. Army policy for RGA is contained in AP 71-9, managed the Headquarters of the Department of the Army.

Navy

An acquisition program is typically rooted in the Navy's mission area analysis process. This process is specific to the area studied and converts Defense Planning Guidance to Navy tasks by identifying deficiencies of the current force to perform a described task and then identifying possible remedies to correct the deficiency. These steps respectively transition strategies-to-tasks, tasks-to-needs, and needs-to-solutions. Some needs are more directly addressed as fleet experience plays a very important role in defining potential acquisition programs.

If a deficiency cannot be resolved with non-materiel solutions such as changes in organization, doctrine, tactics, or training, a MNS is generated. The resource sponsor (e.g., Director, Submarine Warfare Division) responsible for the MNS staffs the MNS for policy, test and evaluation, and Fleet CINC review to determine if any other similar efforts already exist and for compatibility with Navy doctrine, etc. In the case of an ACAT I program, the MNS is also staffed to the JROC Secretariat for comments and determination of joint potential by the CINCs and other Services. Also a C4I, insensitive munitions, and/or intelligence review and certification are obtained, as appropriate. All comments from this initial, O-6 level staffing are returned to the resource sponsor to be addressed. When ready, a second similar staffing is completed to obtain flag/general

officer signatures. The staffing process, in the case of an ACAT I program, is followed by the JROC (i.e., Pre-JROC, JROC Review Board (JRB), and JROC) process to finally approve the MNS.

Other Service visibility/participation in the MNS process can go from heavy in the case of an ACAT I program going through the JROC process, or light in the case of a lesser ACAT program with an ORD receiving a Joint potential designator vote of "Independent". If the Navy, for example, votes "Independent" on an Army program, the only involvement would be a brief review of the Army program's ORD at each revision by a very limited number of staff personnel to verify that the Navy remains uninterested in participating.

A more centralized, formalized, and joint system of requirements document management would help to streamline the process and reduce the time it takes for document reviews.

An AOA is an independent assessment developed to examine a broad spectrum of potential alternative solutions to the mission need described in the MNS. Appropriately, the depth and breadth of the study is usually a direct reflection of the cost of the program. The appropriate authority, dependent on the ACAT level of the program must approve both the scopes of the analyses and final results. During the AOA, representatives from both the requirements and acquisition communities participate in IPT meetings.

If the solution to the need is only satisfied by a family of systems, all of which accomplish a similar function or operate collectively, then a CRD may be appropriate. A CRD provides a common framework, operational concept, and performance-based requirements that facilitate the development of subsequent documents. In the case of an ACAT I program, the JROC determines the need for a CRD. The approval process for a CRD parallels that of the MNS.

Whether under the overarching requirements of a CRD or not, an Operational Requirements Document (ORD) is generated. The ORD addresses specific performance and related operational parameters of the proposed system and discusses how the system will be operated and supported. The heart of the ORD is the set of KPPs, which are validated by the JROC for an ACAT I program. Like the MNS and CRD, the ORD has a similar approval process.

After a program is established, regular Acquisition Coordination Team (ACT) meetings bring representatives from both the requirements and acquisition communities together to ensure that all aspects of the program are proceeding on schedule and to verify readiness for the next milestone.

CAIV principles are applied early and continuously through all phases for both new and fielded systems. CAIV analyses actively considers performance versus cost versus schedule trade-offs and other cost reduction activities within the expected fiscal environments. First considered in the AOA, CAIV concepts are carried forward to the

Acquisition Program Baseline (APB) after finalization of the ORD. The ACT is used to provide analysis support in pursuit of CAIV objectives.

In addition to acquisition programs designated by ACAT level, the Navy has a provision for an Abbreviated Acquisition Program (AAP) designed to streamline the process for programs of relatively little cost. Like the ACAT programs, though, these programs are reviewed and approved by the appropriate authority after review of a requirements document. Like the other Services, there are also instructions in place for a Rapid Deployment Capability (RDC) to allow quick procurement of a system to respond to a newly discovered threat or an urgent safety situation. In this case, an RDC effort is transitioned into a standard acquisition program as soon as reasonably possible.

Over the last several decades, the S&T accounts have been reduced at a much greater rate than total Research, Development, and Test & Evaluation total obligation authority (TOA). This reduced TOA presents a serious challenge on resource allocation to simultaneously meet the requirements pull from the Fleet and continue the technology push to meet national responsibilities, exploit new opportunities, and pursue the grand challenges that lead to a stronger national S&T capability. The Department can no longer pursue these two venues as it has in the past, but must remain focused on what must be done to meet specific military capabilities. A new approach has been initiated to advance those aspects of the need for technology push while meeting a prioritized set of specific major capabilities in response to the Fleet.

The key to the process is the compilation and prioritization of future capabilities developed by Resource Sponsors within Office of the chief of Naval Operations (OPNAV) and the United States Marine Corps (USMC), the CINCs Command Capabilities Issues (CCI's) and the Integrated Warfare Architectures (IWAR) process. These candidate future capabilities are further filtered to identify the common capabilities most responsive to broad fleet requirements and the unique Naval capabilities which must be developed to meet emerging Fleet requirements. This filtered integrated set of prioritized capabilities are finally approved and prioritized by the Department of the Navy (DoN) corporate S&T Board and becomes the Major Capabilities List to be addressed by investment spikes in response to the Requirements Pull.

This Major Capabilities List constitutes the area of corporate commitment to specific naval capabilities, specific budget levels and finite periods of performance. Each Major Capability becomes the focal point of a specific demonstration of capability to insure performance expectations are met and that the transition to acquisition programs is facilitated.

When Major Capabilities have been approved by the corporate S&T Board, a multi-organization IPT is established. This IPT is a permanent body remaining in force throughout the duration of the development. The membership comprises representation from Office of Naval Research (ONR), OPNAV, USMC, OPNAV, and the Acquisition community representative from the warfare area which is expected to transition the technology. Chairmanship of the IPT is expected to transition from ONR leadership

early in the project development to the acquisition community as development and evaluation matures.

This balance between technology push and requirements pull best accommodates the dual responsibility of the S&T community.

Marine Corps

The major objective of the USMC requirements generation process is to ensure warfighters needs are accurately described in MNSs and ORDs and accurately conveyed to the materiel designer and the operational tester/evaluator. The Assistant Commandant of the Marine Corps validates warfighting deficiencies developed by the Marine Corps Combat Development Command (MCCDC). The approved MNS is forwarded to the Marine Corps Systems Command (MARCORSYSCOM) for materiel solution. Operational performance requirements of the chosen acquisition alternative are then captured by MCCD in the ORD.

Until recently, the development of requirements documentation had been, in large measure, a "stove pipe" process. However, systems that were ultimately designed and tested did not always accurately fulfill Users' needs. In order to improve the requirements generation process, the Marine Corps has implemented a new process featuring a coordinated effort of MCCDC, MARCORSYSCOM, and Marine Corps Operational Test and Evaluation Activity (MCOTEA). This process is prescribed in the July 1998 U.S. Marine Corps ORD Development Process Handbook. Representatives of each command are now brought together early in the program as an Integrated Product Team (IPT). The process harmonizes the efforts of the combat developer, materiel developer, and operational tester/evaluator at the outset, and inherently eliminates "stove piping."

The IPT integrates all acquisition activities starting with requirements definition, through production, fielding/deployment and operational support in order to optimize the design, manufacturing, business, and supportability processes. This new ORD development process will support the maturation of requirements as a program progresses, embeds the Concept of Employment in the body of the ORD, addresses operational effectiveness and suitability requirements, strengthens the link to the MNS, the Fleet Operational Need Statement, and the Marine Corps Master Plan. It acknowledges CAIV in both testing and procurement, and minimizes administrative staffing time within the Marine Corps.

Air Force

Requirements Origination

Requirements originate primarily from the Air Force Modernization Planning Process (MPP). Guided by the Air Force Strategic Plan, the MPP is the foundation for requirements generation and the acquisition process. Mission area planners at the Major Commands (MAJCOMs), certain designated Field Operating Agencies (FOA) and Air Staff functional areas conduct the MPP through the Mission Area Assessment (MAA), Mission Need Analysis (MNA), and Mission Solution Analysis (MSA) to generate the

Mission Area Plans (MAP), Mission Support Plan (MSP) and fiscally constrained investment plans. Several of these steps involve extensive analysis of plans and requirements to develop a deficiency list and the most cost-effective method to overcome them. The MAPs and MSPs identify and prioritize operational deficiencies and identify potential non-materiel and materiel solutions to these deficiencies. The MPP provides investment strategies for Air Force Program Objective Memorandum (POM) development.

MAJCOM Requirements Generation Process

To streamline requirements generation, develop better requirements documents, and reduce staffing time, MAJCOMs should use a team approach. The MAJCOM shall determine the appropriate players for the team. Teams should include representatives from the testing, logistics, environmental, safety, health, weather, and acquisition communities and, if possible, representatives from other MAJCOMs, supporting commands, Headquarters, United States Air force (HQ USAF), or any other agency that has a role in defining the mission deficiency or operational requirement. The AoA is a key analysis tool used by the MAJCOM to help define ACAT I operational requirements. The team approach will result in the appropriate offices becoming involved in the creation of the requirements documents, an early "buy in" to the content, and an increased understanding of the issues within the document itself. Ultimately, the team approach should lead to better written requirements documents as well as reduced staffing cycle time. Once the draft documents are generated, they go through an extensive coordination and review cycle at the MAJCOM that originates it and then at the Air Staff and other MAJCOMs, then to the Joint Staff for the ACAT 1 requirements documents. Part of this approval/validation process that is unique to the Air Force is the Air Force Oversight Review Council (AFROC). The AFROC chairperson is the Director of Operational Requirements (AF/XOR). Other service representatives may be present when joint needs or requirements are considered.

Operational Concept of Employment

The development and clarification of the Operational Concept of Employment within the ORD is a critical part in the requirements process. The operational concept of employment is the user's description of how to operate and employ the system in conjunction with existing and projected, AF, Joint, or Allied systems to execute the mission. This description should be well documented in section one of the ORD. It articulates the user's intent, lays the foundation for a more complete understanding of system operation and sets the stage for parameter description later in the ORD. It also aids the test & evaluation community in developing testing measures of performance and effectiveness, and clarifies operations that the maintainer will have to support. The operational concept is an integral component of the ORD.

Cost As an Independent Variable/ Reduction in Total Ownership Costs Emphasis

DoD, Congress, and the Secretary of Defense are placing increased emphasis on acquisition reform. As a result, the acquisition/requirement community's goal is to increase efficiency and acquire systems for the warfighter in a "cheaper, better, smarter

and faster" manner using capability based requirements, constraints, and risk management. Primary efforts include reducing overall cycle time, life cycle costs (LCC), total ownership costs (TOC), by implementing the CAIV policy which includes the streamlining of requirements and exploring ways to implement innovative ideas. The acquisition process is an iterative series of activities and events performed by the DoD, SAF, HQ USAF, and many commands, agencies, and program offices. For identified material deficiencies, development of a MNS is the normal initial step. A series of event-driven phases follow each milestone. Exit criteria, as established by the milestone decision authority (MDA) for each milestone, must be successfully achieved before a program enters the next phase of program development. As the user, or user's representative, the operating command's participation is essential in each acquisition phase and in the development and refinement of the ORD. During the formative stages of program development; i.e., phase 0, when writing the ORD, the user, tester, and logistician participation are fundamental to the process. During these early phases, important projections, assumptions, and decisions are made impacting on the success or failure of an emerging system program.

Evolutionary Acquisition (EA) and the Requirements Process

Evolutionary acquisition is a tailored, streamlined acquisition strategy in which a core capability is fielded, and the system design has a modular structure and provisions for future upgrades and changes (follow-on increments) as requirements are refined. Depending on the size, scope, and character of the effort involved, each increment may be covered by an existing requirements document, an annex or update to an existing requirement document, or may require a new ORD. The proposed approach to be used for subsequent incremental developments and coordination for evolutionary acquisition programs should be included in the original requirements document and acquisition strategy documents. ORDs with obvious evolutionary growth potential or programs for evolutionary acquisition will describe how incremental increases in capability benefit the warfighter. Evolutionary acquisition benefits will be described in Section 1 as part of the Operational Concept of Employment. If validated requirements associated with future incremental delivery are anticipated, document these requirements in the original ORD.

Emerging Concepts

The Air Force is emphasizing methods to accelerate innovation and technology transfer to support the warfighter. Innovation, sometimes described using the term "emerging concept", is generally defined by the requirements and acquisition communities as the matching of a potential military capability to a compelling operational need. Current processes designed to capitalize on innovation include ATDs, ACTDs, battlelab initiatives (from the AF Battlelabs), and spiral development (e.g. C2 Software). Battlelab procedures and documentation are described in AFI 10-1901, Air Force Battlelab Responsibilities, Processes and Documentation, and information regarding how ACTDs are integrated into the requirements process can be found on the World Wide Web (WWW) Site at www.acq.osd.mil/at/descript.htm.

Successful transition – Theory

Successful transition of emerging concepts into an acquisition program depends on up front, parallel planning by the user, maintainer and developer communities. Consideration of all elements in the normal requirements and acquisition processes through production and fielding must be addressed in an accelerated fashion upon approval of the emerging concept for demonstration or testing. Especially important is determining the operational concept of employment of the system, the maintenance and manpower requirements (that drive LCC), infrastructure requirements, and total system costs (versus demonstration costs). Equally important is resolving potential doctrinal disconnects that arise, particularly with concepts that have joint use. Without early consideration and resolution of these issues, along with concurrent/associated ORD development, valuable time will be lost in the effort to accelerate the innovative concept to a Milestone II or III decision point. To realize the benefits from the maturity of a concept, the goal is to insert the resulting program as far along as possible in the acquisition process to accelerate the fielding to the benefit of the warfighter. In most cases, achieving this goal is directly attributable to identifying the required funding plus the teamwork and up-front concurrent effort to successfully develop the requirements documents necessary to enter the acquisition process.

Innovative Concept ORD Requirement

Regardless of process, the degree of acceleration of a mature concept depends heavily on available funding and system maturity. In an ideal situation, the MAJCOM may submit a single ORD with parameters described in sufficient enough detail to proceed directly to a Milestone III decision. Ultimately, DoD regulations mandate a formal ORD be approved prior to a concept proceeding to a program status. Different programs mature at various times and could enter the acquisition process at different milestones. For example, a program may need more study and evaluation and will enter at MS I with and ORD I. Another program may be fully matured and ready for full scale development. Such a program could enter the acquisition cycle at Milestone III with an ORD written in sufficient detail to support an MS III decision.

The Battlelab Vision

Creating an environment where innovative ideas are rapidly harvested and evaluated -- leading to the swift fielding of proven concepts. Battlelabs identify innovative and revolutionary operations and logistics concepts using field ingenuity to measure the worth of those concepts. The Air Force is committed to a vigorous program of experimenting, testing, exercising, and evaluating new operations and logistics concepts for the advancement of air and space power.

Air Force Battlelabs Provide Focused Emphasis

Focused Battlelabs will provide additional emphasis in six activity areas in Air Force centers of excellence. The Battlelabs are aimed at our core competencies, both institutionally and operationally. Leveraging ongoing training and exercise investments, the Battlelabs have a direct relationship with the Air Force's network of Warfare Centers. The Warfare Centers lead air and space training exercises and support the operational testing and evaluation of new capabilities. While conducting these functions, the Warfare Centers generate innovative operations and logistics concepts.

The interfaces between the three decision support systems manifest through two primary channels: processes and documents. A list of these processes and documents can be found in Appendix B.

Appendix B: Implementation Memorandums

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MEMORANDUM FOR VICE CHIEF OF STAFF OF THE ARMY
                        VICE CHIEF OF NAVAL OPERATIONS
                        ASSISTANT COMMANDANT OF THE MARINE CORPS
                        VICE CHIEF OF STAFF OF THE AIR FORCE
                        DIRECTOR, PROGRAM ANALYSIS & EVALUATION
                        ASSISTANT SECRETARY OF DEFENSE, COMMAND
                           CONTROL AND COMMUNICATIONS

SUBJECT: Implementing Cycle Time Reduction Recommendations

          One of the main areas of focus of the recently completed "Section 912" study on the
Requirements and Acquisition Processes was reduction of acquisition cycle time, defined as the
time from program initiation (usually a Milestone I decision) to achievement of initial
operational capability. Data from the Selected Acquisition Reports show that on average it takes
the Department about 11 years to complete the acquisition cycle for its major defense programs.
This is too long. Long cycle times lead to higher costs and diminished military effectiveness. In
today's environment of asymmetrical threats and rapidly advancing commercial technologies,
our objective must and will be to achieve acquisition cycle times no longer than five to seven
years.

          The Requirements and Acquisition Process study addressed this issue, and based on the
study recommendations, I am directing the following actions:

  - **The Cost of Delay**. The Department's leadership needs more visibility into the
    important performance and cost implications of long cycle times. Therefore,
    beginning immediately, analyses of alternatives used in the acquisition process should
    consider the benefits and detriments, if any, of accelerated and delayed introduction
    of military capabilities, including the effect on life-cycle costs. The Director of
    Systems Acquisition shall work with the offices of Strategic and Tactical Systems and
    Program Analysis and Evaluation to ensure that this guidance is reflected in DoD
    5000.2-R with respect to the process for Analysis of Alternatives and Cost as an
    Independent Variable analyses.

  - **Evolutionary Acquisition Policy**. The Department needs a more definitive state-
    ment of evolutionary acquisition policy. The Director of Acquisition Program Inte-
    gration shall lead the effort to revise the DoD Directive 5000.1 and DoD 5000.2-R to
    identify evolutionary acquisition strategies as the preferred method of doing business.
    This change shall be ready for approval within four months. The policy should
    reflect an emphasis on early and rigorous technology demonstrations; mature

technologies; open systems design to facilitate flexible technology insertion; incremental improvements to match evolving requirements; and the achievement of cycle time schedule benchmarks that are 50% of the Department's historical average.

- **Use of Demonstrations**. Another key component of reducing acquisition cycle time is the broader use of demonstrations. Specifically, demonstrations shall be the preferred method of assessing and reducing concept risk, and assessing the military utility of alternative technologies. In addition, the Department must do a better job of incorporating Cost as an Independent Variable analyses, acquisition strategies, and supportability plans into the demonstration process. These actions will permit a smoother transition into the acquisition process and facilitate the development of concepts of operations and Operational Requirements Documents. Finally, we need to define a process whereby the approval of a demonstration constitutes determination of a valid mission need for further exploration. The Director of Acquisition Program Integration shall work with the Joint Staff and the offices of Strategic and Tactical Systems and Advanced Systems Concepts to prepare policy language for the DoD 5000.2-R. This language should be ready for approval within four months.

- **Analyzing the Technology Market**. The Deputy Under Secretary for Science and Technology shall enhance existing processes, such as the Technology Area Review Assessments and Joint Warfighting Science and Technology Plan, to better clarify technological opportunities that are emerging from any and all sources, including DoD laboratories, the commercial R&D community, other federal agencies, and foreign sources. The Deputy Under Secretary shall also institute an annual S&T "Readiness Conference" to identify emerging mature technologies consistent with identified materiel needs. The first conference shall be held within two months. If changes to acquisition policy are warranted, the Deputy Under Secretary shall work with the Director of Acquisition Program Integration to revise the DoD 5000.2-R.

As part of implementing the Section 912 recommendations, the Vice Chairman of the Joint Chiefs of Staff is directing changes to the requirements generation system. These changes will include the establishment of a policy that expresses military requirements in a time-phased manner and focuses on the cost the Department should be willing to pay to achieve the desired capability.

Reducing long cycle times means rigorous, up-front work in the areas of threat development, technology demonstration, and requirements generation. But once acquisition programs are initiated, we must focus on the rapid achievement of the initial operational capability. Accordingly, I direct the Component Acquisition Executives and the Overarching Integrated Product Team Leaders to work closely with Program Managers and Program Executive Officers to ensure that evolutionary acquisition is aggressively implemented and institutionalized.

MEMORANDUM FOR SECRETARY OF THE ARMY
                      SECRETARY OF THE NAVY
                      SECRETARY OF THE AIR FORCE
                      VICE CHIEF OF STAFF OF THE ARMY
                      VICE CHIEF OF NAVAL OPERATIONS
                      ASSISTANT COMMANDANT OF THE MARINE CORPS
                      VICE CHIEF OF STAFF OF THE AIR FORCE
                      DIRECTOR, PROGRAM ANALYSIS & EVALUATION
                      ASSISTANT SECRETARY OF DEFENSE, COMMAND
                        CONTROL & COMMUNICATIONS

Subject: Implementing Requirements Generation and Acquisition Policy

The Requirements and Acquisition Working Group chartered in furtherance of section 912 of the National Defense Authorization Act for Fiscal Year 1998, concluded its study and made several meaningful recommendations. These recommendations will positively impact both the requirements and acquisition communities.

To take advantage of the excellent work performed by this study group, we are immediately implementing the following requirements and acquisition initiatives:

    a. Where feasible, new requirements intended for evolutionary acquisition will stipulate required performance and schedule for the baseline and each subsequent element.

    b. Interoperability will be a Key Performance Parameter for Operational Requirements Documents (ORD) and Capstone Requirements Documents.

    c. ORDs shall include threshold and objective costs.

    d. Implement a DoD-wide requirements automated tracking system for all acquisition category levels.

Corresponding changes to CJCSI 3170.01, Requirements Generation System, and DoD 5000.2-R, Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information System Acquisition Programs shall be accomplished in the next update (by August 1999).

        JOSEPH W. RALSTON   J. S. GANSLER
             General, USAF   Under Secretary of Defense for Acquisition
Vice Chairman of the Joint Chiefs of Staff   and Technology